STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0104736
Owner:	City of Sullivan
Address:	210 West Washington, Sullivan, MO 63080
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Sullivan Wastewater Treatment Plant
Address:	Sullivan, MO 63080
Legal Description:	NE ¼, NE ¼, NE ¼, Sec. 3, T40N, R2W, Franklin County
Receiving Stream:	Tributary to Winsel Creek (U)
First Classified Stream and ID:	Spring Creek (C)(01099)
USGS Basin & Sub-watershed No.:	(07140103-090007)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 – POTW - SIC #4952
Influent lift station/three cell aerated lagoon/sludge is retained in lagoon.
Design population equivalent is 14,350.
Design flow is 1.25 MGD.
Actual flow is 1.0 MGD.
Design sludge production is 215 dry tons/year.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

August 23, 2002
Effective Date

Stephen M. Mahfood, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

August 22, 2007
Expiration Date

Jim Hull, Director of Staff, Clean Water Commission

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand$_5$***	mg/L		45	30	once/week	grab
Total Suspended Solids***	mg/L		90	60	once/week	grab
pH – Units	SU	****		****	once/week	grab
Chromium, Total Recoverable	mg/L	0.062		0.062	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE October 28, 2002.						
Dichloroethylene	mg/L	*		*	once/quarter**	grab
Trichloroethylene	mg/L	*		*	once/quarter**	grab
Cyanide, Amenable to Chlorination	mg/L	*		*	once/quarter**	grab
Cadmium, Total Recoverable	mg/L	*		*	once/quarter**	grab
Copper, Total Recoverable	mg/L	*		*	once/quarter**	grab
Lead, Total Recoverable	mg/L	*		*	once/quarter**	grab
Nickel, Total Recoverable	mg/L	*		*	once/quarter**	grab
Zinc, Total Recoverable	mg/L	*		*	once/quarter**	grab
Arsenic, Total Recoverable	mg/L	*		*	once/quarter**	grab
Mercury, Total Recoverable	mg/L	*		*	once/quarter**	grab
Silver, Total Recoverable	mg/L	*		*	once/quarter**	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE January 28, 2003.						
Whole Effluent Toxicity (WET) Test	% Survival	See Special Conditions			once/year in August	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2003. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** Sample once per quarter in the months of January, April, July & September.
*** This facility is required to meet a removal efficiency of 65% or more.
**** pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.0 pH units.

C. SCHEDULE OF COMPLIANCE

On November 19, 1997, the Missouri Clean Water Commission granted a variance to the City of Sullivan thereby allowing, in part, the modified schedule of compliance below:

1. Monthly monitoring will be conducted from April 1998 to October 1999 and summarized in a report submitted to the department by November 15, 1999.
2. Should sampling indicate ground water contamination, permittee will submit an engineering plan for upgrade of the facilities. The plan shall include a time table for completion of construction and meeting final losing stream effluent limitations, no later than three years from the first round of sample results showing ground water contamination.
3. If the existing lagoon will be a part of an upgrade then the City must conduct a detailed site-specific geological investigation concerning collapse potential. This investigation must take place during the planning phase of the project and must be coordinated with the Division of Geology and Land Survey.

D. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.

4. Changes in Discharges of Toxic Substances

   The permittee shall notify the Director as soon as it knows or has reason to believe:
   (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
      (1) One hundred micrograms per liter (100 µg/L);
      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
      (4) The level established in Part A of the permit by the Director.
   (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

D. SPECIAL CONDITIONS (continued)

5. Report as no-discharge when a discharge does not occur during the report period.

6. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
   (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
   (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
   (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
   (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
   (e) There shall be no significant human health hazard from incidental contact with the water;
   (f) There shall be no acute toxicity to livestock or wildlife watering;
   (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
   (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
   (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
   (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

8. Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#001	100%	Annually	grab	August

a. Test Schedule and Follow-Up Requirements

(1) Perform a single-dilution test in the months and at the frequency specified above.

If the effluent passes the test, do not repeat the test until the next test period. Submit results with the annual report.
If the effluent fails the test, a multiple dilution test shall be performed within 30 days, and biweekly thereafter, until one of the following conditions are met:
   (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
   (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

D. SPECIAL CONDITIONS (continued)

8. Whole Effluent Toxicity (WET) (continued)

a. Test Schedule and Follow-Up Requirements (continued)

(2) The permittee shall submit a summary of all test results for the test series to the WPCP, Planning Section, P.O. Box 176, Jefferson City, MO 65102 within 14 days of the third failed test. DNR will contact the permittee with initial guidance on conducting a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE). The permittee shall submit a plan for conducting a TIE or TRE to the Planning Section of the WPCP within 60 days of the date of DNR's letter. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(3) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(4) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(5) In addition to the WET test summary report required in part (2), all failing test results shall be reported to DNR within 14 days of the availability of the results.

(6) All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

b. PASS/FAIL procedure and effluent limitations

(1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.

(2) To pass a multiple-dilution test:

(a) the computed percent effluent at the edge of the zone of initial dilution, Acceptable Effluent Concentration (AEC), must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; or,
(b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is an effluent limit violation.

c. Test Conditions

(1) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.

D. SPECIAL CONDITIONS (continued)

8. Whole Effluent Toxicity (WET) (continued)

c. Test Conditions (continued)

(2) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

(3) When dilutions are required, upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.

(4) Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after sample collection.

(5) Single-dilution tests will be run with:

(a) Effluent at the AEC concentration;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(6) Multiple-dilution tests will be run with:

(a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless otherwise specified by MDNR, procedures should be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA/600/4-90/027.

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

Date of Fact Sheet: October 18, 1999

Date of Public Notice: July 5, 2002

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FACT SHEET

This Fact Sheet explains the applicable regulations, rationale for development of this permit and the public participation process.

NPDES PERMIT NUMBER: 0104736

FACILITY NAME: Sullivan Wastewater Treatment Plant

OWNER NAME: City of Sullivan

LOCATION: Sec. 3, T40N, R2W, Franklin County

RECEIVING STREAM: Winsel Creek (Spring Creek)

FACILITY CONTACT PERSON: Tom Harmon TELEPHONE: (573) 468-4812

FACILITY DESCRIPTION AND RATIONALE

The City of Sullivan has applied for reissuance of their NPDES permit #MO-0104736 for the Sullivan Wastewater Treatment Plant, Sullivan, MO 63080.

The wastewater treatment plant is an aerated three-cell lagoon having a water surface area of 10 acres measured at the 10 foot operating depth. The primary cell has a surface area of 5 acres, the secondary cell has a surface area of 3 acres and the tertiary cell has a surface area of 2 acres. The plant is designed to treat the wastes from a population equivalent of 14, 350 with an estimated average daily discharge of 1.25 million gallons.

The plant receives primarily domestic wastewater with some industrial contributions at a present average daily flow of 1.0 million gallons. The plant discharges treated water to Winsel Creek (Spring Creek) in the NE ¼, NE ¼, NE ¼, Sec. 3, T40N, R2W, Franklin County.

The receiving stream is unclassified. The beneficial uses are livestock and wildlife watering, and protection of warm water aquatic life and human health – fish consumption. The Missouri Department of Natural Resources, Division of Geology and Land Survey has determined that the receiving stream is losing, therefore the protection of groundwater is also considered.

Rationale for final Permit Limitations are based on a Water Quality Standards Review performed by the Planning Section of the Water Pollution Control Program. An annual WET test and a limit on Chromium remain in the permit. Monitoring for several metals has been proposed due to the acceptance of landfill leachate and the presence of several industries. Monitoring for Dichloroethylene and Trichloroethylene is due to the acceptance of water from a groundwater remediation project.

The modified schedule of compliance, issued by the Missouri Clean Water Commission, to study the potential for groundwater contamination is currently on-going.

This permit will be issued for a period of five years.

WATER QUALITY STANDARDS REVIEW SHEET

FACILITY: Sullivan WWTP

DESIGN FLOW: 1.25 MGD

RECEIVING STREAM: Winsel Creek

STREAM CLASS: Unclassified

STREAM BENEFICIAL USES: no designated uses

7Q10 LOW FLOW: "0"

A lagoon was constructed prior to DNR-DGLS' determination that the receiving stream is "losing". Standard lagoon limits of 30 mg/L of BOD and 60 mg/L of TSS are currently in effect.

Per conditions of a Clean Water Commission variance, a ground-water study is underway to determine if the current discharge adversely affects ground-water pollution is indicated, an alternative receiving stream should be selected; if such an alternative is not feasible, losing stream limits, as per the 10 CSR 20-7.015 regulation, requiring "10/15" mg/L for BOD and TSS, respectively (monthly averages), with year-around disinfection, will be required as final limits for a discharge to Winsel Creek. A schedule for meeting these limits should allow no greater than three years following the next permit renewal.

If no ground-water pollution is indicated by the study, the lagoon discharge with current limits may be permitted for 20 years following the effective date of the original lagoon operating permit. However, if the lagoon is incapable of meeting additional limits for any organics or metals for which there is reasonable potential for discharge (as determined following…. By the Pretreatment and the Planning section), the schedule for lagoon removal may be shortened. The most recent pretreatment report for the metal finisher indicates chromium is the only detectable metal; its concentration in the report (1.3 mg/L) indicates total pass-through might marginally cause exceedence of the acute-toxicity criterion for chromium: (1.3 mg/L / (1 MGD/.05 MGD) = .062 mg/L). Therefore, a chromium limit of 0.062 mg/L (for "acute" aquatic-life protection) has been included in the current permit and should be continued. Other pretreatment parameters (Cn, Cd, Cu, Pb, Ni, Zn, As, Hg, Ag) should be monitored by not limited unless pretreatment reports indicate higher concentrations, or future WET tests/TIEs indicate toxicity due to these substances. Past monitoring reports had indicated presence of dichloroethylene and trichloroethylene; these should also be monitored.

WET TEST: Reasonable potential for effluent toxicity may be assumed for several reasons: landfill watstewater is currently being discharged through the lagoon, a 1994 EPA WET test indicated toxicity, a metal-finishing industry discharges through the city system, and the STP is now classified as a major municipal facility. Therefore, an annual WET test, with an "acceptable effluent concentration" (AEC) of 100% effluent, should be required. (Results available at this office indicate a "passing" test in 1997 and no test data for 1998.)

SUMMARY: At this time we recommend a 1-year permit with current limits and "monitoring only" for an constituents with reasonable potential for discharge, after which the results of the ground-0water study and permit monitoring can be used to determine final limits, discharge location and a schedule of compliance.

REVIEWER: RG DATE: 7-6-99 SECTION CHIEF: JM